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First Named Inventor	Michel Luc Cote	OCT 11 (2003
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		C1	Piotr Berman et al. "Optimal Phase Conflict Removal for Layout of Dark Field Alternating Phase Shifting Masks" IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems Vol. 19, No. 2 February 2000, pp. 175-187	
	A	C2	Andrew B. Kahng et al. "New Graph Bipartizations for Double-Exposure, Bright Field Alternating Phase-Shift Mask Layout" Proceedings of the ASP-DAC 2001, Asia and South Pacific Design Automation Conference 2001, pp. 133-138.	
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U.S. PATENT DOCUMENTS									
EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE			
200	6,420,074 B2	7/16/2002	Wang et al.	430	5	12/7/2000			
	6,436,590 B2	8/20/2002	Wang, et al.	430	5	4/20/2001			
	2002/0083410 A1	6/27/2002	Wu, et al.	716	19	12/5/2001			
	2002/0122994 A1	9/5/2002	Cote, et al.	430	5	2/28/2002			
	2002/0127479 A1	9/12/2002	Pierrat	430	S	2/6/2002			
	2002/0129327 A1	9/12/2002	Pierrat, et al.	716	19	11/15/2001			
	2002/0136964 A1	9/26/2002	Pierrat	430	5	3/23/2001			
	2002/0142231 AT	10/3/2002	Kling, et al.	430	S	4/25/2001			
	2002/0142232 A1	10/3/2002	Kling, et al.	430	5	4/25/2001			
	2002/0144232 A1	10/3/2002	Ma, et al.	716	21	5/3/1/2001			
	2002/0152454 A1	10/17/2002	Cote, et al.	716	21	6/7/2002			
27	2002/0155363 AT	10/24/2002	Cote, et al.	430	5	6/7/2002			

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Serial No. Atty. Docket No. NMT1 1002-6 10/085,759 INFORMATION DISCLOSURE **CITATION** Applicant CÔTÉ, Michel Luc PTO-1449 Group Filing Date 1756 2/28/2002 OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) CITATION **EXAMINER'S** INITIALS Cooke, M., "OPC/PSM Designs For Poly Gate Layers", European Semiconductor, Vol. 22, No. 7, pp. 57-59, July 2000. Granik, Y., et al., "Sub-Resolution Process Windows And Yield Estimation Technique Based On Detailed Full-Chip CD Simulation". SPIE, Vot. 4182, pp. 335-341 (2000). Plat, M., et al., "The Impact of Optical Enhancement Techniques on the Mask Error Enhancement Funchtion (MEEF)", SPIE, Vol. 4000, pp. 206-214, March 1-3, 2000. Mansuripur, M., et al., "Projection Photolithography", Optics & Photonics News 11, 17 pages. February 2000.

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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
167	5,302,477	4/12/1994	Dao, et al.	430	5	8/21/1992
	5,308,741	5/3/1994	Kemp	430	312	7/31/1992
4.12	5,324,600	6/28/1994	Jinbo, et al.	430	5	7/7/1992
	5,364,716	11/15/1994	Nakagawa, et al.	430	5	9/3/1992
	5,472,814	12/5/1995	Lin	430	5	11/17/1994
	5,523,186	6/4/1996	Lin, et al.	430	5	12/16/1994
	5,527,645	6/18/1996	Pati, et al.	430	5	11/17/1994
	5,537,648	7/16/1996	Liebmann, et al.	395	500	8/15/1994
	5,538,815	7/23/1996	Oi, et al.	430	5	9/14/1993
	5,565,286	10/15/1996	Lin	430	5	11/17/1994
	5,573,890	11/12/1996	Spence	430	311	7/18/1994
	5,595,843	1/21/1997	Dao	430	5	3/30/1995
	5,620,816	4/15/1997	Dao	430	5	10/13/1995
	5,635,316	6/3/1997	Dao	430	5	10/13/1995
	5,636,131	6/3/1997	Liebmann, et al.	364	490	5/12/1995
	5,702,848	12/30/1997	Spence	430	5	8/23/1996
	5,761,075	6/2/1998	Oi, et al.	364	488	5/31/1996
2.1	5,766,804	6/16/1998	Spence	430	5	8/23/1996
	5,766,806	6/16/1998	Spence	430	5	9/9/1996
	5,807,649	9/15/1998	Liebmann, et al.	430	5 0	10/31/1996
	5,858,580	1/12/1999	Wang, et al.	430	5 5	9/17/1997
	5,923,562	7/13/1999	Liehmann, et al.	364	488	16/18/1996
71	5.923,566	6/13/1999	Galan, et al.	364	489 G	

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EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
AC	5,994,002	11/30/1999	Matsuoka	430	5	9/4/1997
. 7	5,998,068	12/7/1999	Matsuoka	430	5	1/27/1998
-	6,057,063	5/2/2000	Lichmann, et al.	430	5	4/14/1997
	6,066,180	5/23/2000	Kim, et al.	716	19	3/15/1999
	6,083,275	7/4/2000	Heng, et al.	716	19	1/9/1998
	6,130,012	10/10/2000	May, et al.	430	5	1/13/1999
	6,139,994	10/31/2000	Broeke, et al.	430	5	6/25/1999
	6,185,727 B1	2/6/2001	Liebmann	716	19	12/12/1995
	6,228,539 B1	5/8/2001	Wang, et al.	430	. 5	1/12/1999
	6,251,549 B1	6/26/2001	Levenson	430	11	10/28/1999
	6,258,493 B1	7/10/2001	Wang, et al.	430	5	7/17/2000
	6,335,128 B1	1/1/2002	Cobb. et al.	430	5	9/28/1999
	6,338,922 B1	1/15/2002	Liebmann, et al.	430	5	5/8/2000
	2001/0000240 A1	4/12/2001	Wang, et al.	430	5	12/7/2000
En	2001/0028985 A1	10/11/2001	Wang, et al.	430	5	4/20/2001

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EXAMINER'S INITIALS			COUNTRY	CLASS	SUBCLASS	TRANSL	NO
Pa	JP 6-67403	3/11/1994	JP			Ø	
	WO 01/23961 A1	4/5/2001	wo				
	JP 1,283,925	2/14/1991	JP			×	
	WO 02/03140 A1	1/10/2002	wo				
	JP 2-140743	5/30/1990	JP	4.		×	
	GB 2.333,613 A	7/28/1999	GB				
	JP 2,638,561	4/25/1997	JP				
	JP 2,650,962	5/16/1997	JP				
	EP 0 653 679 A2	5/17/1995	EP				
	JP 8,051,068	2/20/1996	JP			×	
	JP 8-236317	9/6/1996	JP			Ø	
	JP 10-133356	5/22/1998	JP			0	
	JP 11-143085	5/28/1999	JP				
	JP 62067547	3/27/1987	JP				
	WO 98/12605 A1	3/26/1998	wo				
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Serial No. Atty. Docket No. 10/085,759 NMTI 1002-6 INFORMATION DISCLOSURE **CITATION Applicant** CÔTÉ, Michel Luc PTO-1449 Group 1752 Filing Date 2/28/2002 Not Yet Assigned OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) **EXAMINER'S** CITATION INITIALS Ackmann, P., et al., "Phase Shifting and Optical Proximity Corrections to Improve CD Control on Logic Devices in Manufacturing for Sub 0.35 um 1-Line", SPIE, Vol. 3051, pp. 146-153, March 12-14, 1997. Matsuoka, K., et al., "Application of Alternating Phase-Shifting Mask to 0.16um CMOS Logic Gate Patterns", Matsushita Electric Ind. Co., Ltd. (9 pages). Wang, R., et al., "Plensed Phase Shift Mask: Concept, Design, and Potential Advantages to Photolithography Process and Physical Design", Motorola Semiconductor Product Sector (12 pages). Ógawa, K., et al., "Phase Defect Inspection by Differential Interference", Lasertec Corporation (12 pages). Pistor, T., "Rigorous 3D Simulation of Phase Defects in Alternating Phase-Shifting Masks", Panoramic Technology Inc. (13 Semmier, A., et al., "Application of 3D EMF Simulation for Development and Optimization of Alternating Phase Shifting Masks", Infineon Technologies AG (12 pages). Wong, A., et al., "Polarization Effects in Mask Transmission", University of California Berkeley (8 pages). Erdmann, A., "Topography Effects and Wave Aberrations in Advanced PSM-Technology", Fraunhofer Institute of Integrated Circuits (11 pages). Granik, Y., et al., "CD Variation Analysis Technique and its Application to the Study of PSM Mask Misalignment", Mentor Graphics (9 pages). Hanyu, et al., "New Phase-Shifting Mask with Highly Transparent SiO2 Phase Shifters", Fujitsu Laboratories Ltd. (11 pages). Ishiwata, N., et al., "Fabrication of Phase-Shifting Mask", Fujitsu Limited (11 pages). Levenson, M., et al.. "Phase Phirst! An Improved Strong-PSM Paradigm", M.D. Levenson Consulting, Petersen Advanced Lithography, KLA-Tencor (10 pages). Levenson, M., et al., "SCAA Mask Exposures and Phase Phirst Design for 110nm and Below", M.D. Levenson Consulting, Canon USA, Inc., JSR Microelectronics, Inc. (10 pages). Lin, B.J., "The Relative Importance of the Building Blocks for 193nm Optical Lithography", Linnovation, Inc. (12 pages). **EXAMINER** Date Considered: EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Serial No. Atty. Docket No. NMTI 1002-6 10/085,759 INFORMATION DISCLOSURE **CITATION** Applicant CÔTÉ, Michel Luc PTO-1449 Group 1752 Filing Date 2/28/2002 Not Yet Assigned OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) EXAMINER'S CITATION INITIALS McCallum, M., et al., "Alternating PSM Mask Performance - a Study of Multiple Fabrication Technique Results", International SEMATECH (6 pages). Morikawa, Y., et al., "100nm-alt.PSM Structure Discussion for ArF Lithography", Dai-Nippon Printing Co., Ltd. (15 pages). Ozaki, T., et al., "A 0.15um KrF Lithography for 1Gb DRAM Product Using Highly Printable Patterns and Thin Resist Process", Toshiba Corporation (2 pages). Rhyins, P., et al., "Characterization of Quartz Etched PSM Masks for KrF Lithography at the 100nm Node", Photronics, Inc., MIT Lincoln Lab, ARCH Chemicals, Finle Technologies, KLATencor Corp. (10 pages). Rosenbluth, A., et al., "Optimum Mask and Source Patterns to Print a Given Shape", IBM (17 pages). Schmidt, R., et al., "Impact of Coma on CD Control for Multiphase PSM Designs", AMD, ASML (10 pages). Sewell, H., et al., "An Evaluation of the Dual Exposure Technique", SVG Lithography Systems Inc. (11 pages). Spence, C., et al., "Optimization of Phase-Shift Mask Designs Including Defocus Effects", AMD, Princeton University, Vecor Technologies Inc. (8 pages). Suzuki, A., et al., "Multilevel Imaging System Realizing k1=-,3 Lithogrpahy", Canon Inc. (13 pages). Vandenberghe, G., et al., "(Sub-)100nm Gate Patterning Using 248nm Alternating PSM", IMEC, Mentor Graphics (9 pages). Fritze, M., et al., "100-nm Node Lithography with KrF?", MIT Lincoln Lab, Numberical Technologies, Photronics, Arch Chemicals (14 pages). Fukuda, H., et al., "Patterning of Random Interconnect Using Double Exposure of Strong-Type PSMs", Hitachi Central Research Ferguson, R., et al., "Pattern-Dependent Correction of Mask Topography Effects for Alternating Phase-Shifting Masks", IBM Microelectronics, University of California Berkeley (12 pages). Toublan, O., et al., "Phase and Transmission Errors Aware OPC Solution for PSM: Feasibility Demonstration", Mentor Graphics Corp. (7 pages). **EXAMINER** Date Considered: EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Serial No. Atty. Docket No. NMTI 1002-6 10/085,759 INFORMATION DISCLOSURE CITATION **Applicant** CÔTÉ, Michel Luc PTO-1449 Group 1752 Filing Date 2/28/2002 Not Yet Assigned OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) EXAMINER'S CITATION INITIALS Yanagishita, Y., et al., "Phase-Shifting Photolithography Applicable to Real IC Patterns", Fujitsu Limited (11 pages). Levenson, M., et al.. "Improving Resolution in Photolithography with a Phase-Shifting Mask", IEEE, Transactions On Electron Devices, Vol. ED-29, No. 12, pp. 1828-1836, December 1982. Levenson, M., et al., "The Phase-Shifting Mask II: Imaging Simulations and Submicrometer Resist Exposures", IEEE Transactions on Electron Devices, Vol. ED-31, No. 6, pp. 753-763, June 1984. Terasawa, T., et al., "0.3-Micron Optical Lithography Using a Phase-Shifting Mask", SPIE, Optical/Laser Microlithography II, Vol. 1088, pp. 25-33, March 1989. Nitayama, A., et al., "New Phase Shifting Mask with Self-Aligned Phase Sifters for a Quarter Micron Photolithography", IEDM, pp. 3.3.1-3.3.4, December 3-6, 1989. Jinbo, H., et al., "0.2um or Less i-Line Lithography by Phase-Shifting-Mask Technology", IEEE, pp. 33.3.1-33.3.4 (1990). Neureuther, A., "Modeling Phase Shifting Masks", SPIE, 10th Annual Symposium On Microlithography. Vol. 1496, pp. 80-85 Yamanaka, T., et al., "A 5.9um2 Super Low Power SRAM Cell Using a New Phase-Shift Lithography", IEDM, pp. 18.3.1-18.3.4 lnokuchi, K., et al., "Sub-Quarter Micron Gate Fabrication Process Using Phase-Shifting-Mask for Microwave GaAs Devices", Extended Abstracts Of The 1991 Intl. Conference On Solid State Devices And Materials, Yokohama, Japan, pp. 92-94 (1991). Inokuchi, K., et al., "Sub-Quarter-Micron Gate Fabrication Process Using Phase-Shifting Mask for Microwave GaAs Devices". Japanese Journal Of Applied Physics, Vol. 30, No. 12B, pp. 3818-3821, December 1991. Jinbo, H., et al., "Improvement of Phase-Shifter Edge Line Mask Method", Japanese Journal Of Applied Physics, Vol. 30, No. 11B, pp. 2998-3003, November 1991. Kimura, T., et al., "Subhalf-Micron Gate GaAs Mesfet Process Using Phase-Shifting-Mask Technology", IEEE, GaAs IC Symposium, pp. 281-284 (1991). Wiley, J., et al., "Phase Shift Mask Pattern Accuracy Requirements and Inspection Technology", SPIE, Integrated Circuit Metrology, Inspection, And Process Control V, Vol. 1464, pp. 346-355 (1991). Hirai, Y., et al., "Automatic Pattern Generation System for Phase Shfiting Mask", 1991 Symposium on VLSI Technology, Digest of Technical Papers, pp. 95-96, May 28-30, 1991.

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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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copy of this form with next communication to applicant.

Atty. Docket No. Serial No. NMTI 1002-6 10/085,759 INFORMATION DISCLOSURE **CITATION Applicant** CÔTÉ, Michel Luc PTO-1449 Group Filing Date 2/28/2002 -Not Yet Assigned OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) EXAMINER'S CITATION INITIALS Brunner, T., et al., "170nm Gates Fabricated by Phase-Shift Mask and Top Anti-Reflector Process", SPIF, Optical/Laser Microlithography VI. Vo. 1927, pp. 182-189 (1993). Lin, B.J., "Phase-Shifting Masks Gain an Edge", IEEE Circuits & Devices, pp. 28-35, March 1993. Moniwa, A., et al., "Algorithm for Phase-Shift Mask Design with Priority on Shifter Placement", Jpn. J. Appl. Phys., Vol. 32, Pt. 1. No. 12B, pp. 5874-5879, December 1193. Ooi, K., et al., "Computer Aided Design Software for Designing Phase-Shifting Masks", Jpn. J. Appl. Phys., Vol. 32, Pt. 1, No. 12B, pp. 5887-5891, December 1993. Ohtsuka, H., et al., "Evaluation of Repair Phase and Size Tolerance for a Phase-Shift Mask". J. Vac. Sci. Technol. B, Vol. 11, No. 6, pp. 2665-2668, November/December 1993. Ronse, K., et al., "Comparison of Various Phase Shift Strategies and Application to 0.35um ASIC Designs", SPIE -Optical/Laser Microlithography VI, Vol. 1927, pp. 2-16 (1993). Galan, G., et al., "Application of Alternating-Type Phase Shift Mask to Polysilicon Level for Random Logic Circuits", Jpn. J. Appl. Phys., Vol. 33, pp. 6779-6784 (1994). Mizuno, F., et al., "Practical Phase-Shifting Mask Technology for 0.3um Large Scale Integrations", J. Vac. Sci. Technol. B, Vol. 12, No. 6, pp. 3799-3803, November/December 1994. Pati, Y.C., et al., "Phase-Shifting Masks for Microlithography: Automated Design and Mask Requirements", J. Opt. Soc. Am., Vol. 11, No. 9, pp. 2438-2452, September 1994. Stirniman, J., et al., "Wafer Proximity Correction and Its Impact on Mask-Making", Bacus News, Vol. 10, Issue 1, pp. 1, 3-7, 10-12, January 1994. Waas, T., et al., "Automatic Generation of Phase Shift Mask Layouts", Microelectronic Engineering, Vol. 23, pp. 139-142 Barouch, E., et al., "OPTIMASK: An OPC Algorithm for Chrome and Phase-Shift Mask Design", SPIE, Vo. 2440, pp. 192-206, Moniwa, A., et al., "Heuristic Method for Phase-Conflict Minimization in Automatic Phase-Shift Mask Design", Jpn. J. Appl. Phys., Vol. 34, Pt. 1, No. 12B. pp. 6584-6589, December 1995. Langston, J., et al., "Extending Optical Lithography to 0.25um and Below", Solid State Technology, pp. 57-64, March 1995.

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Atty. Docket No. Serial No. NMTI 1002-6 10/085,759 INFORMATION DISCLOSURE CITATION Applicant CÔTÉ, Michel Luc PTO-1449 Group Filing Date 2/28/2002 Not Yet Assigned OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) **EXAMINER'S** CITATION INITIALS Nagahiro, Y., "Improved Mask Technique for Photolithography Applied to 0.25um LSI - Improvement of Resolution, Pattern Correction, Exposure Area", Nikkei Microdevices, pp. 1-6, April 1995. Okamoto, Y., et al., "A New Phase Shifting Mask Technology for Quarter Micron Photolithography", SPIE, Vol. 2512, pp. 311-318 (1995). Pierrat, C., et al., "Required Optical Characteristics of Materials for Phase-Shifting Masks", Applied Optics, Vol. 34, No. 22, pp. 4923-4928, August 1, 1995. Galan, G., et al., "Alternating Phase Shift Generation for Coplex Circuit Designs", SPIE, Vol. 2884, pp. 508-519, September 18-20, 1996. Kanai, H., et al., "Sub-Quarter Micron Lithography with the Dual-Trench Type Alternating PSM", SPIE, Vol. 2793, pp. 165-173 Ishiwata, N., et al., "Novel Alternating Phase Shift Mask with Improved Phase Accuracy", SPIE, Proceedings Of The 17th Annual Symposium On Photomask Technology And Management, Vol. 3236, pp. 243-249 (1997). Morimoto, H., et al., "Next Generation Mask Strategy - Technologies are Ready for Mass Production of 256MDRAM?", SPIE, Vol. 3236, pp. 188-189 (1997). Roman, B., et al., "Implications of Device Processing on Photomask CD Requirements", SPIE, Vol. 3236 (1997) (Abstract Nakae, A., et al., "A Proprosal for Pattern Layout Rule in Application of Alternating Phase Shift Mask", SPIE, Vol. 3096, pp. 362-374 (1997). Tsujimoto, E., et al., "Hierarchical Mask Data Design System (PROPHET) for Aerial Image Simulation, Automatic Phase-Shifter Placement, and Subpeak Overlap Checking", SPIE. Vol. 3096, pp. 163-172 (1997). Yamamoto, K., et al., "Hierarchical Processing of Levenson-Type Phase Shifter Generation", Jpn. J. Appl. Phys., Vol. 36, Part 1, No. 12B. pp. 7499-7503, December 1997. Gordon, R., et al., "Design and Analysis of Manufacturable Alternating Phase-Shifting Masks", Bacus News, Vol. 14, Issue 12, pp. 1-9; December 1998.-Nara, M., et al., "Phase Controllability Improvement for Alternating Phase Shift Mask", Dai Nippon Printing Co. Ph. d. (16 Ohnuma, II., et al., "Lithography Computer Aided Design Technology for Embedded Memory in Logic", Jpn. J. Appl. Phys. Vol. 37, Part I, No. 12B, pp. 6686-6688, December 1998. **EXAMINER**: Date Considered:

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